

SE 500 HANDHELD



MARINE VHF RADIO

OWNER'S HANDBOOK

Shakespeare®

TABLE OF CONTENTS

1.0	Introduction.....	1	3.2.6	Voice Transmitting.....	11
1.1	Purpose.....	1	3.2.7	High/Med/Low Transmit Power.....	11
1.2	Equipment Description.....	2	3.2.8	Weather Channels Access.....	12
1.3	Supplied Parts.....	2	3.2.9	Channel 16 Priority.....	12
1.4	Optional Accessories.....	2	3.2.10	All Channel Scan.....	12
1.5	Licence Requirements.....	3	3.2.11	Memory Scan.....	13
1.5.1	License Application.....	3	3.2.12	Dual Watch.....	13
1.5.2	Operator's License.....	3	3.2.13	Void Control Operation.....	14
1.6	Brief Operating Instructions...	4	3.3	Methods Of Operation.....	14
1.7	Technical Specifications.....	6			
2.0	Installation.....	7	4.0	Appendix.....	15
2.1	Unpacking And Inspection.....	7	Appendix A.....		15
2.2	Preparation For Use.....	7	USA VHF Marine Channel Assignments		
2.2.1	Antenna Installation.....	7	Appendix B.....		16
2.2.2	Charging the Battery.....	8	VHF Marine Weather Channel Assignments		
2.2.3	Using the Belt Clip.....	8	Appendix C.....		16
3.0	Operation.....	9	International VHF Marine Channel Assignments		
3.1	Controls And Display.....	9	Appendix D.....		17
3.2	Operating Procedures.....	10	Canadian VHF Marine Channel Assignments		
3.2.1	Power and Volume Control.....	10	Appendix E.....		19
3.2.2	Display Backlighting.....	10	Phonetic Alphabet And Glossary		
3.2.3	Setting Squelch.....	10	Appendix F.....		20
3.2.4	Channel Selection.....	10	Schematics		
3.2.5	USA/International Channel Select.....	11			

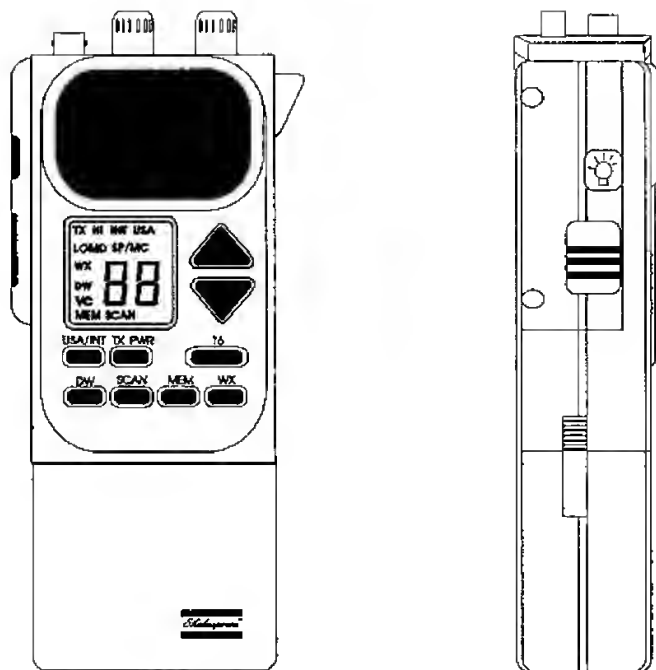


Figure 1-1. Shakespeare SE 500 Handheld Marine VHF Radio.

1.0 INTRODUCTION

Welcome and congratulations on your purchase of the Shakespeare SE 500 Handheld Marine VHF radio. You have purchased a high technology piece of marine electronics, fully backed by the Shakespeare name. The Shakespeare SE 500 Handheld Marine VHF radio incorporates modern styling and functionality, making the Shakespeare SE 500 not only easy, but pleasing to operate.

The frequency synthesized transceiver provides access to all usable U.S., Canadian and International Channels. Ten weather channels are also available through easy front panel key presses making the SE 500 the best value in marine VHF radio.

The key to obtaining the most use and pleasure from your new VHF radio, is reading the owner's manual. This will help you give your radio the proper usage and care to ensure many years of satisfying use. It is important to cover the areas of this manual pertaining to "License Requirements" established by the Federal Communications Commission.

1.1 Purpose

The Shakespeare SE 500 Owner's Manual is designed to answer most of your questions about the installation and operation of your radio. It is important to read through each section before attempting to operate your radio. A "Brief Operating" section assures you are on the air quickly and properly. Many new user pitfalls can be avoided by reading this manual.

1.2 Equipment Description

The Shakespeare SE 500 Handheld Marine VHF radio is a digitally synthesized transceiver constructed of only the highest grade corrosion resistant materials. All electronic components are solid state providing the most efficient use of precious battery power. Also, the Shakespeare SE 500 marine handheld VHF radio offers three output power settings, 1 watt, 2.5 watts, and 5 watts.

The microprocessor control used in this radio offers features found only in far more expensive units. Features such as Dual Channel Watch, All Channel Scan, Priority Channel 16, and 10 Weather Channels are only some of the Shakespeare SE 500's many extras.

1.3 Supplied Parts

SE 500 Radio Transceiver	Warranty Card
BP 600 Heavy Duty Battery Pack	Flexible Antenna
AC Line Charger	FCC Application- 506
Belt Clip with Screws	FCC Restricted Operator's Permit- 753
Vinyl Carrying Case	Owner's Manual
Wrist Strap	

1.4 Optional Accessories

DC - DC Adapter
"Quick Charge" Charger
BNC/SO-239 External Antenna Adapter
Speaker Mike
BP 600 Replacement/Spare Battery Pack (600 mA-hr)

Shakespeare has been building a reputation for uncompromising quality in marine communications for more than 35 years. A reputation that our US Navy and Coast Guard have come to count on. So whether you selected your Shakespeare radio for peace of mind or for fun, we recommend you consult your Shakespeare marine electronics dealer for the wide variety of marine antennas and accessories available. He can help you select the system combination that best fits your boat and needs.

1.5 License Requirements

Pleasure boats (U.S. vessels), equipped with a marine radio, must have a Ship Station License. Other vessels (including compulsory equipped vessels) may require a Ship Radio Station License and a Commercial Radio Operator's License to operate the radio station. If the ship is not a U.S. vessel, contact the local authorities to determine licensing requirements.

When purchasing a new boat, a new station license must be applied for as the "Ship Station License" is not transferable. Therefore, upon the sale of your boat, the FCC requires that you submit your old license for cancellation. A change in mailing address requires notification to be filed with the FCC. This notification is mailed to:

Federal Communications Commission
P. O. Box 1040
Gettysburg, PA 17326

1.5.1 License Application

The Ship Radio Station License is obtained by filling out and submitting Form 506 with \$35 to the FCC. **DO NOT SEND CASH.** To operate the radio while waiting for the license to be returned from the FCC, fill out and keep the bottom part of Form 506. This "Temporary Permit" is good for 90 days from the date the Form 506 is mailed to the FCC. Your Ship Station License is valid for a period of 5 years. The call sign for your station will be issued on the license and the temporary permit has instructions for assigning the vessel's temporary call sign. If the ship's radio station is to be operated in other countries, contact the local authorities for their licensing requirements. Mail Station License Application form to:

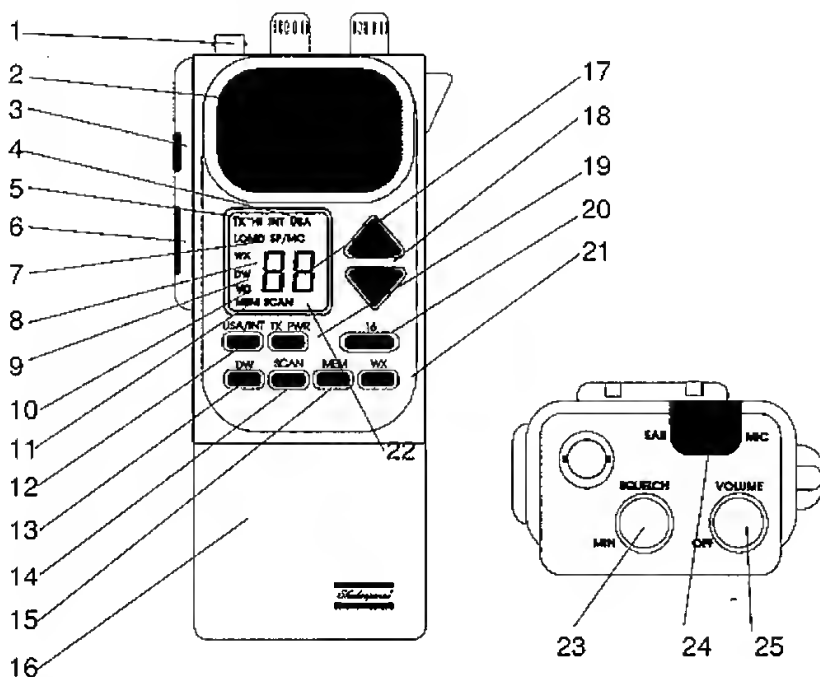
Federal Communications Commission
Marine Ship Service
P. O. Box 358275
Pittsburgh, PA 15251-5275

1.5.2 Operator's License

While operating anywhere in the UNITED STATES, no Operator's License is required to use the SE 500 transceiver when it is operated in accordance with Part 80 of the FCC regulations. However, if you are going to dock in a foreign port or planning to leave a foreign port to dock in U.S. ports, it will be necessary to obtain the Restricted Permit. To do this fill out and mail to the FCC a Form 753 along with a \$35 fee in the form of a single check or money order payable to the FCC. **DO NOT SEND CASH.** For further license information call the FCC at 717-337-1212.

1.6 Brief Operating Instructions

Use the following brief operation instructions to quickly refresh your memory when using the Shakespeare SE 500 Handheld Marine VHF radio. Please remember that this section is not designed to replace a thorough study of the Owner's Manual. Install the flexible antenna by inserting into the connector on top of the radio. To remove squeeze the bottom of the antenna and twist.



- 1-Antenna Connector
- 2-Speaker/Microphone
- 3-Backlight Control (DIM)
- 4-USA/International Indicator
- 5-Transmit Indicator
- 6-Push-To-Talk
- 7-LO/MED/HI Tx Power
- 8-Weather Channels Indicator
- 9-Dual Watch Indicator
- 10-Void Control Indicator
- 11-Memory Active Indicator
- 12-USA/International Key
- 13-Dual Watch Key

- 14-Scan Key
- 15-Memory Key
- 16-Battery Pack
- 17-Active Channel Readout
- 18-Channel Keys
- 19-Transmit Power Key
- 20-Channel 16 Select Key
- 21-Weather Mode Select Key
- 22-Scan Indicator
- 23-Squelch Control
- 24-Speaker/Microphone Connector
- 25-Power and Volume Control

Brief Operations Table

POWER ON/VOLUME	Turn volume control (top of radio) Clockwise.
SQUELCH	Turn the Squelch Control knob counterclockwise until noise is heard. Turn Squelch Control knob clockwise, just until noise is no longer heard.
BACKLIGHTING	Touch the [DIM] key on the side of the radio to turn on the LCD display backlighting for 10 seconds.
USA/INT	This key selects USA or International bands. See Appendix A through D for channel listing and usage.
SELECTING CHANNELS	Pressing the [UP/DOWN] arrow keys, scrolls through the available channels. The displayed channel is the active channel.
EMERGENCY CALLING	Press [16] key. This channel is used to call the Coast Guard and general vessel calling. Always switch to another channel to chat. To leave Emergency-Calling Channel 16 press [DW] or Channel Select [UP/DOWN] arrow keys.
TRANSMIT POWER	Press [TX PWR] to toggle between HI, MD, LO transmit power settings.
TRANSMIT	Press and hold the PUSH-TO-TALK (PTT) key on the side of the radio to transmit.
WEATHER CHANNELS	Press [WX] to access the last selected weather channel. To change WX channels, use the [UP/DOWN] arrow keys. To exit the weather channels press [16] or [WX] .
DUAL WATCH	Set Squelch, then select a channel other than 16. Touch the [DW] key. To stop, press the [16] , [WX] or [DW] keys.
ALL SCAN	Set Squelch as mentioned and press [SCAN] key.
VOID CONTROL	Press and hold the backlight control for 2 seconds. VC annunciation comes on and the keypad is locked. Repeat for unlocking.

NOTE

1 beep confirms a valid entry. 3 beeps mean an invalid entry- TRY AGAIN.

1.7 Technical Specifications

General

Physical Characteristics	Height: 6.0"H Width: 2.5"W Depth: 1.5"D Weight: 1.0 lbs
Temperature Range	-20 Deg C to +50 Deg C
Battery life	Duty cycle -5 min receive -1 min transmit 5 Watts - 4 hrs, 2.5 Watts - 7 hrs, 1 Watts - 14 hrs 10.8 VDC @ 600 mA-hrs
Channels	124 total, 57 USA, 57 International and 10 Weather
Channel Spacing	25 KHz
Charge Voltage	12.5 VDC +/- .5 V

Transmitter

Output Power	5 Watt/2.5 Watt/1 Watt
Output Impedance	50 Ohms
Modulation	FM, 5 KHz max deviation
Frequency Stability	+/- .0005%(5ppm)
Spurious Emissions	2.5 uW
Hum and Noise	-40 db
Audio Response	Less than 10% distortion at +/-3kHz deviation. +6 db/octave pre-emphasis. Audio low pass filter included.

Receiver

Sensitivity	.30uV or less for 12db SINAD
Selectivity	.50uV or less for 20db SINAD -6db at +/- 7.5 KHz -60db at +/-25 Hz
Spurious Response	
Attenuation	60 db min.
Intermodulation Spurious	
Response Attenuation	60 db min.
Audio Output Power	350 mW min @ 8 Ohms - Internal or speaker mike
Audio Distortion	10% @ 350 mW into 8 Ohms
Audio Response	+1/-3 db matching a 6db/octave de-emphasis, from 300-3000 Hz
Squelch Sensitivity	Threshold: .30 uV Max, Full Squelch: .80 uV

Specifications subject to change without notice and are nominal unless otherwise indicated.

2.0 INSTALLATION

Before using the Shakespeare SE 500 Handheld Marine VHF radio, please study the following section. Failure to adhere to these installation and operating considerations can damage or significantly degrade the performance of your VHF radio.

2.1 Unpacking and Inspection

The Shakespeare SE 500 Handheld Marine VHF radio comes to you 100% inspected. When unpacking check the parts shipped with the unit against the supplied parts lists. If there is a discrepancy notify the selling agent or Shakespeare Customer Service (1-803-276-5504).

If the radio was damaged during shipment, save ALL packing material to make it easier to file a claim with the carrier. All damage claims from shipment must be filed with the freight carrier used to ship the radio to you.

2.2 Preparation for Use

The remainder of the Installation section, covers those tasks that should be addressed before usage.

2.2.1 Antenna Installation

1. Take the antenna out of the plastic bag.
2. Hold the antenna by its wide base. Then, line up the antenna connector on the radio with the connector at the bottom of the antenna. The pins on the side of the radio connector must line up with the slots on the inside of the antenna connector.
3. Press the antenna onto the connector on the top of the radio.
4. The antenna is locked in place by turning the base of the antenna clockwise until a click is felt.
5. Reverse the above procedure to remove.

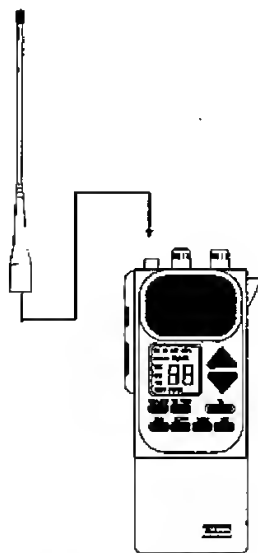


Figure 2-1. Antenna Assembly.

CAUTION

DO NOT operate the SE 500 VHF radio in a transmit mode without the antenna. This can result in severe damage to the transmitter portion of the radio and void the warranty.

2.2.2 Charging the Battery

It is very important that the battery supplied with the SE 500 VHF radio be fully charged prior to using it for the first time. This will help maximize the life of the battery pack that powers your handheld VHF.

Before charging or interchanging the battery, make sure the SE 500 is turned OFF by turning the volume control, located on the top, counter-clockwise until a "click" is felt. Plug the end of the battery charger cable, into the back of the battery pack. The battery is the lower section of the radio. After the charger and battery pack are connected, plug the battery charger into a 115 VAC electrical receptacle.

Let the battery charge for 14 hours to assure it has received a full charge. After it has been fully charged, and the charger and battery pack disconnected, the SE 500 is ready to use.

Helpful Tips On Battery Usage

1. Do not leave charger on constantly.
2. Discharge at least 50% before recharging to prevent battery memory problem associated with all Ni-Cad batteries.

2.2.3 Using the Belt Clip

The SE 500 Handheld Marine VHF radio is supplied with a belt clip that is user installed. Installation is not required for proper operation and is optional.

To install the belt clip, lay the radio face down on a soft non-scratch surface. Locate the two screws packed with the belt clip. Position the top two holes near the top of the belt clip over the two holes on the back of the radio. Install the screws, keeping in mind that the screws should thread into the transceiver easily. Using a small screw driver, carefully tighten the screws.

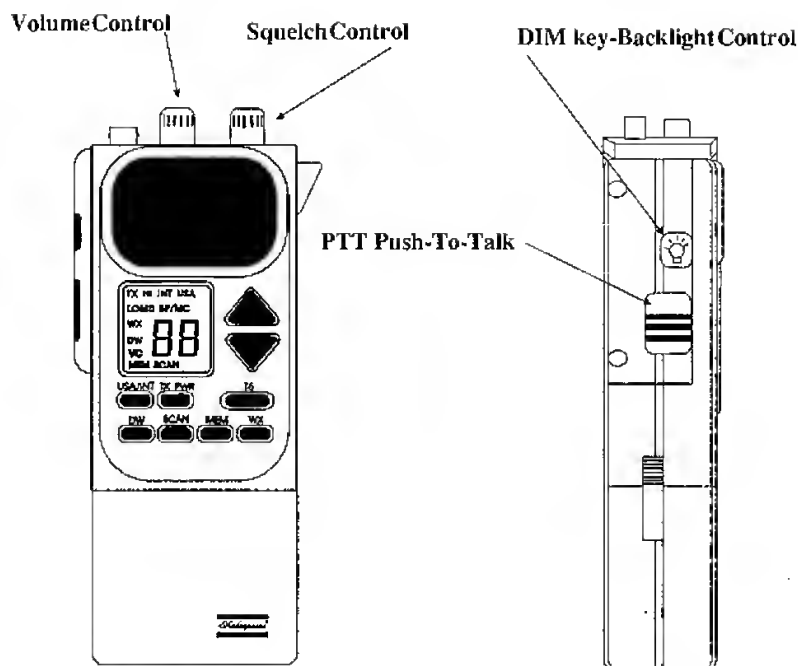


Figure 3-1. SE 500 Handheld Marine VHF Radio.

3.0 OPERATION

The Shakespeare SE 500 Handheld Marine VHF radio was designed with the marine environment in mind, with special attention paid to ease of operation. The following section is written to help you realize the maximum benefit of your purchase. The SE 500 marine VHF radio is not only a convenience but a valuable tool in life threatening situations. This life saving potential makes thorough study of this Owner's manual extremely important.

3.1 Controls And Display

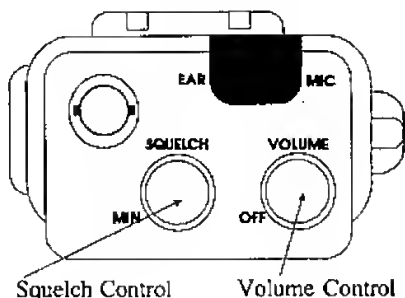
The controls and displayed information can be found on the front and top panels of the SE 500. Two knobs on the top control power ON, speaker volume and squelch adjustment. The backlit LCD display shows selected channel, transmit power setting, scan mode and transmit mode. The keypad controls selection of receive and transmit channels, transmit power level, Dual channel watch, all channel scan, memory scan, weather channel access, USA or International channels and instant channel 16 priority select. A single beep of the radio indicates a valid keyboard entry. Three beeps mean an invalid entry- PLEASE TRY AGAIN.

3.2 Operating Procedures

3.2.1 Power and Volume Control

Turn the Volume Control knob (top right control knob), clockwise. A "click" is heard and felt. At this point the display shows numbers and annunciators. The channel being displayed is Channel 16 with the transmit output power set to "HI". Also, the "USA" channel assignments is shown. This is your first indication of the power being turned ON.

To adjust the Volume level turn the Squelch Control knob counterclockwise until static is heard in the speaker. At this time the volume of the speaker can be adjusted to a reasonable level. Make this adjustment by turning the Volume Control back and forth until you are comfortable with the background noise level.



3.2.2 Display Backlighting

The display backlighting of the SE 500 is normally off. This saves precious battery power when the backlighting is not needed. Press the **DIM** key on the left side of the radio just above the **PTT** key, to turn the backlight on. The backlight stays on for 10 seconds, then automatically goes off.

3.2.3 Setting Squelch

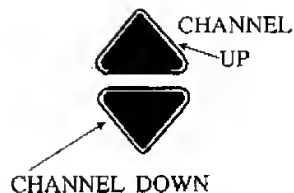
To adjust the squelch setting, start by turning the Squelch Control knob (top left control knob), all the way counterclockwise. Rotate the Volume Control knob counterclockwise until the static noise heard in the radio speaker is at a comfortable level. Next, when no radio transmissions are being heard, turn the Squelch Control knob clockwise just to the point that the static noise is no longer heard. This quiets the static between received radio transmissions and still allows the incoming messages to be heard.

The level of squelch adjustment needed to quiet the radio static noise is dependent on the background static intensity. Keep in mind that the squelch may need to be adjusted when listening to a different channel.

3.2.4 Channel Selection

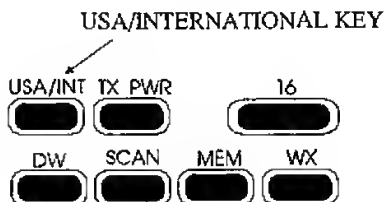
Channel selection for the normal transmit/receive channels is set using the arrow keys found on the right side of the front panel. The current active channel selection is viewed in the LCD display.

To change channels, simply press the **UP/DOWN** arrow key. Observe the changing channels in the LCD display. From your present channel, pressing the **UP** arrow key will increase the channel numbers. In the same respect, from your present channel, pressing the **DOWN** arrow key decreases the channel numbers. If the highest or lowest channel available is reached and the pressing of the arrow key is continued, the channel numbers will cycle around to the top or bottom of the list and continue changing. Holding **UP** or **DOWN** changes the channel at a rapid rate. Practice several times to become accustomed to this. Some channels have no Tx function (ie. 15, 75, 76 guard channels). Please study the channel allocation list in the Appendix to become familiar with the proper and customary usage.



3.2.5 USA/International Channel Select

The SE 500 is programmed to access both United States and International channels. Which set of channels you use is determined by the area of operation. Normally in U.S. coastal areas and ports, the USA channels are selected.



To toggle between USA and International channels, press the **USA/INT** key. The channel type selected is indicated in the display.

3.2.6 Voice Transmitting

Until you have memorized the proper usage of each channel, refer to the channel Assignment Appendices before attempting to make a voice transmission. There you will find a listing of the channels and their usage.

Once the proper channel has been selected, locate the **Push-To-Talk** key on the left side of the radio. The **Push-To-Talk** key will be referred to from here on as the **PTT** key. To transmit press and hold **PTT** for the entire transmission. While **PTT** is held in, speak into the microphone slowly and clearly. While the **PTT** key is being held "TX" appears in the LCD display. When the transmission is complete, release the **PTT** key.

3.2.7 High/Medium/Low Transmit Power

The SE 500 has three transmit power output levels, 1 Watt, 2.5 Watts and 5 Watts. The Low power level (1 Watt) is provided for situations where the two parties involved are close to each other. This reduces the congestion on the same channel in areas far away, allowing more individuals to use a channel at one given time.

MED power is to conserve battery life. In most situations, the person you are communicating with can receive you well with 2.5 Watts of power. Try this first before using the full 5 Watts.

To toggle the power output selection between "LO", "MED", and "HI" press the **TX PWR** key. The transmit power output level is displayed in the LCD display window.

3.2.8 Weather Channels Access

The SE 500 has the ability to monitor NOAA and International Weather Service broadcast. This safety feature allows you to listen to weather reports at any time so changes can be made in your boating plans. This allows you to alter your planned course and to make shipboard preparations.

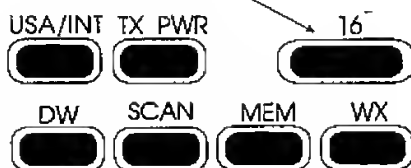
To change from standard marine VHF channels to the weather channel broadcast, press the **WX** key. "WX" appears in the LCD display indicating that weather channel reception is now active. The initial weather channel displayed, is the last one used. Use the channel change arrow keys on the front panel to select a useable weather channel.

To cancel weather channel access, press the **WX** or the **16** key. Pressing of other keys while in the weather channel mode will be an invalid key press.

3.2.9 Channel 16 Priority

RED CHANNEL **16** KEY

As a convenience and safety feature, the SE 500 Handheld Marine VHF radio has a channel **16** priority key labeled "16" in red lettering. Pressing this key from any mode or channel immediately changes the selected channel to channel 16 with the power output changed to "HI". The new channel and transmit power level is shown in the LCD display.



3.2.10 All Channel Scan

The SE 500 has the ability to scan through all available channels. To do this, proper Squelch adjustment is most important.

Press the **SCAN** key. The channel indications displayed in the LCD display on the front panel will begin to cycle through all available channels. If a squelch break occurs on any of the channels while being scanned, the scanning stops on that channel.

The SE 500 resumes scanning 4 seconds after the end of the squelch break unless the **PTT** key is pressed. If this happens, a beep is heard, the scan operation is canceled and your SE 500 remains on the same channel. The All Channel Scan is canceled at any time by pressing the **16**, **WX**, **DW**, **SCAN**, or **MEM** keys.

3.2.11 Memory Scan

The Memory Scan feature of the SE 500 allows programming of the scan function to scan only 10 selected channels. Proper setting of the squelch control is necessary for this function to correctly operate.

STORING: Use the arrow keys on the front panel to select the channel to be stored in scan memory. Press and hold the **MEM** key until second beep is heard (about 1 second). The channel showing in the display is placed into the memory bank. If the channel is already in memory, NO beep is heard.

If you wish to enter more channels into memory, wait until the "MEM" annunciator is out. Then repeat this step for up to nine more channels to make a total of ten. If an attempt is made to store a channel in memory when it is full, a 3 beep tone is heard and "FL" appears in the LCD display for 1 second. Turning the SE 500 OFF for more than 15 seconds erases the memory bank. Simply re-enter your selections after Power Up.

SCAN LIST REVIEW: To review the channels stored, briefly touch and release the **MEM** key. "MEM" and the stored channel appears in the LCD display. Each quick touch of the **MEM** key sequentially shows the channels you have stored in the memory bank.

SCANNING THE MEMORY BANK: Press the **MEM** key. "MEM" annunciator appears. Then press the **SCAN** key. "SCAN" also appears in the display and the channel display begins to cycle through the channels stored in the memory bank. When a squelch break occurs, the display stops and remains on that channel for 4 seconds after the squelch break ends. The scan process then continues.

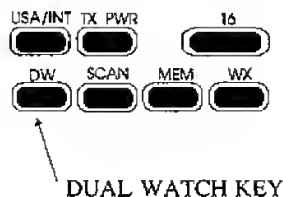
If the **PTT** key on the side of the radio is pressed, a beep tone is heard and the memory scan mode is turned off. This allows communication on the displayed channel to continue. Pressing the **16** key, **WX**, **DW** or **SCAN** keys will cancel the memory scan operation.

CLEARING A CHANNEL: To clear a channel stored in scan memory, press and hold the **MEM** key until "CL" appears in the LCD Display and a beep acknowledge is heard. This takes about 3.5 seconds. ALWAYS MAKE SURE THE "MEM" ANNUNCIATOR IS OUT BEFORE ATTEMPTING TO CLEAR A CHANNEL FROM MEMORY.

3.2.12 Dual Watch

The Dual Watch feature allows you to monitor channel 16 and ONE other channel. To make use of this feature the squelch must be properly set.

Once the squelch is set, select the "other" channel using the channel select arrow keys on the front panel. Next, press the **DW** key. "DW" appears in the LCD display. The channel display then changes between Channel 16 and the "other" channel until a squelch break occurs. The channel is displayed for 4 seconds after the squelch break ends.



Pushing the **PTT** key disables the Dual Watch mode at any time. Also, pressing the channel arrow keys, the **16** priority key, or the **DW** key turns the Dual Watch Mode OFF. Any other key press produces 3 quick beeps and results in no change in current configuration.

3.2.13 Void Control Operation

Be sure you are not in Dual Watch or Scan modes. Press and hold the **DIM** key for 2 seconds. VC annunciation comes on and the keypad is locked.

This is used to prevent accidental keypad presses when being carried via the belt clip or in the vinyl cover. Repeat for unlocking.

3.3 Methods of Operation

The marine VHF radio channels are becoming increasingly crowded. This makes it very important and every users responsibility to help relieve channel congestion through use of professional radio techniques. The following the suggested rules listed below will help everyone using marine VHF.

1. Before transmitting, listen to the channel for traffic already in progress. This will keep you from interfering with others using the channel ahead of you. Keep your transmissions as brief as possible but still make your message understood.
2. Give distress calls **PRIORITY**, unless you are in a position to help. Do not transmit but continue to listen.
3. If there is no response to your call, wait 2 minutes before trying again.
4. Calls on channel 16 should be less than 30 seconds in length. Once contact is established, switch to another channel that is more appropriate for your type of communication. Refer to the Appendices on channel assignment for the correct channels to use. Use professional terminology by referring to the Glossary and the phonetic alphabet found in Appendix E.

4.0 APPENDIX

APPENDIX A - USA VHF MARINE CHANNEL ASSIGNMENTS

CHANNEL		TRANSMIT	MODE	RECEIVE
01A	Port Operations	156.050	S	156.050
02A	Port Operations	156.100	S	156.100
03A	Port Operations	156.150	S	156.150
04A	Port Operations	156.200	S	156.200
05A	Port Operations	156.250	S	156.250
06	Intership Safety	156.300	S	156.300
07A	Commercial, Intership	156.350	S	156.350
08	Commercial, Intership	156.400	S	156.400
09	Com'l/Non-Commercial	156.450	S	156.450
10	Commercial, Intership	156.500	S	156.500
11	Commercial, Intership	156.550	S	156.550
12	Port Operations	156.600	S	156.600
13*	Bridge to Bridge, 1W	156.650	S	156.650
14	Port Operations	156.700	S	156.700
15*	Environmental (Rec. only)	-----	S	156.750
16	Distress, Safety & Calling	156.800	S	156.800
17*	Maritime Control, 1 W	156.850	S	156.850
18A	Commercial, Intership	156.900	S	156.900
19A	Commercial, Intership	156.950	S	156.950
20A	Port Operations	157.000	D	161.600
21A	U.S. Government Only	157.050	S	157.050
22A	Liaison USCG Only	157.100	S	157.100
23A	Port Operations, Gov't only	157.150	S	157.150
24	Public Correspondence	157.200	D	161.800
25	Public Correspondence	157.250	D	161.850
26	Public Correspondence	157.300	D	161.900
27	Public Correspondence	157.350	D	161.950
28	Public Correspondence	157.400	D	162.000
60	Public Correspondence	156.025	S	156.025
61A	Public Correspondence	156.075	S	156.075
62A	Public Correspondence	156.125	S	156.125
63A	Com'l, Port Operations	156.175	S	156.175
64A	Public Correspondence	156.225	D	160.825
65A	Port Operations	156.275	S	156.275
66A	Port Operations	156.325	S	156.325
67*	Bridge-to-Bridge, 1W	156.375	S	156.375
68	Non-Commercial	156.425	S	156.425
69	Non-Commercial	156.475	S	156.475
70	Digital Selective Calling	156.525	S	156.525
71	Non-Commercial	156.575	S	156.575
72	Non-Commercial	156.625	S	156.625
73	Port Operations	156.675	S	156.675
74	Port Operations	156.725	S	156.725
75	Guardband (Rec. only)	-----	S	156.775
76	Guardband (Rec. only)	-----	S	156.825
77	Intership, Port Operations	156.875	S	156.875
78A	Non-Commercial	156.925	S	156.925
79A	Commercial, Intership	156.975	S	156.975
80A	Commercial, Intership	157.025	S	157.025
81A	U.S. Government Only	157.075	S	157.075
82A	U.S. Government Only	157.125	S	157.125

CHANNEL		TRANSMIT	MODE	RECEIVE
83A	U.S. Government Only	157.175	S	157.175
84	Public Correspondence	157.225	D	161.825
85	Public Correspondence	157.275	D	161.875
86	Public Correspondence	157.325	D	161.925
87	Public Correspondence	157.375	D	161.975
88A	Commercial, Intership	157.425	S	157.425

* = 1 Watt

APPENDIX B - VHF MARINE WEATHER CHANNEL ASSIGNMENTS

CHANNEL		RECEIVE
WX0	Weather (Receive only)	163.275
WX1	Weather (Receive only) - NOAA	162.550
WX2	Weather (Receive only) - NOAA	162.400
WX3	Weather (Receive only) - NOAA	162.475
WX4	Weather (Receive only) - CANADA	162.425
WX5	Weather (Receive only)	162.450
WX6	Weather (Receive only)	162.500
WX7	Weather (Receive only) - CANADA	162.525
WX8	Weather (Receive only) - ENVIRONMENTAL	161.650
WX9	Weather (Receive only)	161.775

APPENDIX C - INTERNATIONAL VHF MARINE CHANNEL

CHANNEL		TRANSMIT	MODE	RECEIVE
01	Public Corresp., Port Ops	156.050	D	160.650
02	Public Corresp., Port Ops	156.100	D	160.700
03	Public Corresp., Port Ops	156.150	D	160.750
04	Public Corresp., Port Ops	156.200	D	160.800
05	Public Corresp., Port Ops	156.250	D	160.850
06	Intership Safety	156.300	S	156.300
07	Public Corresp., Port Ops	156.350	D	160.950
08	Commercial, Intership	156.400	S	156.400
09	Com'l/Non-Com'l	156.450	S	156.450
10	Commercial, Intership	156.500	S	156.500
11	Commercial, Intership	156.550	S	156.550
12	Port Operations	156.600	S	156.600
13*	Bridge-to-Bridge, 1 W	156.650	S	156.650
14	Port Operations	156.700	S	156.700
15	Onboard Communications, (Rec. only)	-----	S	156.750
16	Distress, Safety and Calling	156.800	S	156.800
17*	Maritime Control, 1 W	156.850	S	156.850
18	Port Operations	156.900	D	161.500
19	Commercial, Intership	156.950	D	161.550
20	Public Correspondence	157.000	D	161.600
21	Public Correspondence	157.050	D	161.650
22	Public Correspondence	157.100	D	161.700
23	Public Correspondence	157.150	D	161.750
24	Public Correspondence	157.200	D	161.800
25	Public Correspondence	157.250	D	161.850
26	Public Correspondence	157.300	D	161.900
27	Public Correspondence	157.350	D	161.950
28	Public Correspondence	157.400	D	162.000
60	Public Corresp., Port Ops	156.025	D	160.625
61	Public Corresp., Port Ops	156.075	D	160.675

CHANNEL		TRANSMIT	MODE	RECEIVE
62	Public Corresp., Port Ops	156.125	D	160.725
63	Public Corresp., Port Ops	156.175	D	160.775
64	Public Corresp., Port Ops	156.225	D	160.825
65	Public Corresp., Port Ops	156.275	D	160.875
66	Public Corresp., Port Ops	156.325	D	160.925
67*	Bridge-To-Bridge, 1 W	156.375	S	156.375
68	Non-Commercial	156.425	S	156.425
69	Non-Commercial	156.475	S	156.475
70	Digital Selective Calling	156.525	S	156.525
71	Port Operations	156.575	S	156.575
72	Non-Commercial	156.625	S	156.625
73	Port Operations	156.675	S	156.675
74	Port Operations	156.725	S	156.725
75	Guardband (Rec. only)	-----	S	156.775
76	Guardband (Rec. only)	-----	S	156.825
77	Intership, Port Operations	156.875	S	156.875
78	Public Corresp., Port Ops,	156.925	D	161.525
79	Public Corresp., Port Ops,	156.975	D	161.575
80	Public Corresp., Port Ops,	157.025	D	161.625
81	Public Corresp., Port Ops,	157.075	D	161.675
82	Public Corresp., Port Ops,	157.125	D	161.725
83	Public Corresp., Port Ops,	157.175	S	161.775
84	Public Correspondence	157.225	D	161.825
85 *	Public Correspondence	157.275	D	161.875
86	Public Correspondence	157.325	D	161.925
87	Public Correspondence	157.375	D	161.975
88	Public Corresp., Port Ops,	157.425	D	162.025

* = 1 Watt

APPENDIX D - CANADIAN VHF MARINE CHANNEL ASSIGNMENTS (INFOMATION ONLY)

CHANNEL		TRANSMIT	MODE	RECEIVE
01+	Public Correspondence	156.050	D	160.650
02+	Public Correspondence	156.100	D	160.700
03+	Public Correspondence	156.150	D	160.750
04	Intership	156.200	S	156.200
05	Public Correspondence	156.250	S	156.250
06	Intership, Safety	156.300	S	156.300
07+	Commercial, Intership	156.350	S	156.350
08+	Commercial, Intership	156.400	S	156.400
09*	Commercial, Intership	156.450	S	156.450
10	Commercial, Intership	156.500	S	156.500
11+	Commercial, Intership	156.550	S	156.550
12+*	Port Operations	156.600	S	156.600
13	Bridge-To-Bridge, 1 W	156.650	S	156.650
14+**	Port Operations	156.700	S	156.700
15	On Board Communications (Rec. only)	-----	S	156.750
16	Distress, Safety & Calling	156.800	S	156.800
17	Maritime Control	156.850	S	156.850
18+*	Commercial, Intership	156.900	S	156.900
19	Commercial, Intership	156.950	S	156.950
20	Port Operations	157.000	D	161.600
21	Coast Guard	157.050	S	157.050
22+*	Coast Guard	157.100	S	157.100
23+	Public Correspondence	157.150	D	161.750

CHANNEL		TRANSMIT	MODE	RECEIVE
24+*	Public Correspondence	157.200	D	161.800
25+	Public Correspondence	157.250	D	161.850
26	Public Correspondence	157.300	D	161.900
27+*	Public Correspondence	157.350	D	161.950
28+	Public Correspondence	157.400	D	162.000
60+	Public Correspondence	156.025	D	160.625
61^	Coast Guard	156.075	S	156.075
62^	Coast Guard	156.125	S	156.125
63	Ship-to-Ship	156.175	S	156.175
64^+	Public Correspondence	156.225	S	156.225
65**	Port Operations	156.275	S	156.275
66**	Port Operations	156.325	S	156.325
67+*	Commercial, Intership	156.375	S	156.375
68+*	Non-Commercial	156.425	S	156.425
69+*	Non-Commercial	156.475	S	156.475
70+*	Non-Commercial	156.525	S	156.525
71+*	Non-Commercial	156.575	S	156.575
72+	Non-Commercial	156.625	S	156.625
73+*	Port Operations	156.675	S	156.675
74+*	Port Operations	156.725	S	156.725
77**	Commercial, Intership	156.875	S	156.875
78	Non-Commercial	156.925	S	156.925
79+*	Commercial, Intership	156.975	S	156.975
80+*	Commercial, Intership	157.025	S	157.025
81*	Coast Guard	157.075	S	157.075
82*	Coast Guard	157.125	S	157.125
83+*	Coast Guard, Auxiliary	157.175	S	157.175
84+	Public Correspondence	157.225	D	161.825
85+	Public Correspondence	157.275	D	161.875
86+	Public Correspondence	157.325	D	161.925
87+	Public Correspondence	157.375	D	161.975
88+*	Commercial, Intership	157.425	D	157.425

^ = Atlantic Coast only

+ = Pacific Coast only

* = St. Lawrence River area only

** = St. Lawrence River area 1 WATT MAXIMUM

APPENDIX E - PHONETIC ALPHABET AND GLOSSARY

The following list consist of the standard phonetic alphabet, normally used to clarify the transmission of a series of letters.

A - Alpha	J - Juliette	S - Sierra
B - Bravo	K - Kilo	T - Tango
C - Charlie	L - Lima	U - Uniform
D - Delta	M - Mike	V - Victor
E - Echo	N - November	W - Whiskey
F - Foxtrot	O - Oscar	X - X Ray
G - Golf	P - Pappa	Y - Yankee
H - Hotel	Q - Quebec	Z - Zulu
I - India	R - Romeo	

AFFIRMATIVE, used as an answer indicating "yes".

ANTENNA, any part of a radio transmitter that radiates radio energy.

BREAK, used to separate the text from other parts of a message or to separate one message from another.

CHANNEL, a particular frequency or pair of frequencies.

COAX, an electrical conductor used to carry radio energy from the transmitter to the antenna. Normally, the coax has an inner conductor insulated from the outer braided wire shield.

I SPELL, indicates the operator is going to spell the following word, usually using the phonetic alphabet.

MAYDAY, the English of the French M'aidez, "Help Me!"

NEGATIVE, used to indicate an answer of "no". Simply answering yes or no is easily misunderstood when a transmission is weak or noisy.

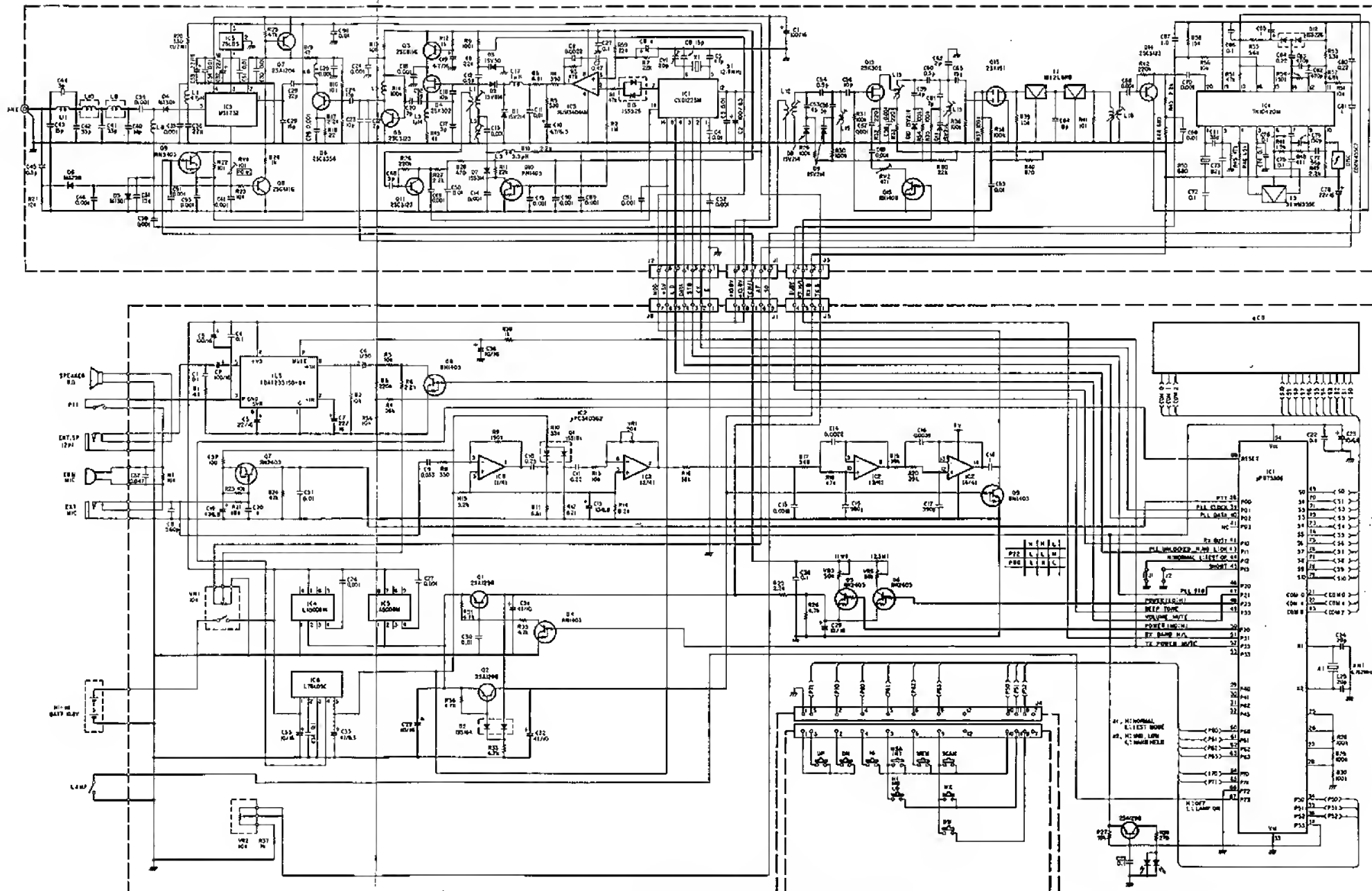
OUT, signals that the transmission has ended and no reply is expected.

OVER, ends a message and indicates a reply is expected.

ROGER, signals that the message was received satisfactorily.

STANDBY, simply means to wait.

WILCO, this message is a reply that indicates the previous message was received, understood and will be carried out.



MODEL SE-500 SCHEMATIC DIAGRAM

SHAKESPEARE LIMITED WARRANTY

Shakespeare Company, Inc. (Shakespeare) warrants your VHF radiotelephone or related accessory for two years from date of original purchase against manufacturing defects in material and workmanship in accordance with the following terms and conditions. This warranty applies to the original purchaser only and is not transferable.

During the warranty period, Shakespeare will repair or replace without charge valid defects in material and workmanship. Warranty does not apply to products that have been damaged through accident, misuse, negligence, modification, alteration, abuse, or normal expected wear. Damage that is determined to be of this nature will be repaired at the consumer's expense.

Products which have had the serial number modified, defaced or removed will not be eligible for repair under this limited warranty.

Shakespeare will not be liable for damages consequential and otherwise arising from the use or inability to use this product. Shakespeare's liability is limited to the repair or replacement of the equipment during the warranty period.

Repairs or adjustments covered under this warranty are to be determined by Shakespeare.

We require proof of original purchase date for warranty determination. A copy of the sales invoice or canceled check is satisfactory evidence. This procedure insures that you receive full-term warranty from the date of original purchase so that the time the unit remains in dealer stock is not deducted.

After the first 30 days following the original date of purchase, all shipping charges to return units for repair are the responsibility of the customer. Please pack the unit carefully to eliminate shipping damage. It is wise to insure shipments against loss or damage. Return the unit to Shakespeare Company, Electronics and Fiberglass Division, RFD 3, P.O. Box 733, Newberry, SC 29108, Attention: Warranty Repair Department. Please include a detailed description of the problem you are experiencing along with proof of purchase. Shakespeare will return the repaired unit to you prepaid. Inquiries concerning the status of a warranty claim may be sent to the address above or expedited by telephoning (803) 276-5504 and asking for the Warranty Service Department.

This warranty gives you specific legal rights, and you may also have other rights which vary from state to state.

Prior to returning a unit, we encourage you to contact the Shakespeare Consumer Service Department by telephone or letter to discuss the nature of the problem. Many times a satisfactory solution can be reached without the need of returning the item.

The Consumer Service Department is also available for out of warranty service and to assist you with any questions or problems associated with the Shakespeare product you purchased.

WARRANTY AND POLICY ARE SUBJECT TO CHANGE WITHOUT PRIOR NOTICE

SHAKESPEARE COMPANY
Electronics and Fiberglass Division

RFD 3 P.O. Box 733

Newberry, SC 29108

Phone 803-276-5504 Fax 803-276-8940

Shakespeare®

A an Anthony Industries company

MARINE VHF TRANSCEIVER EMERGENCY OPERATION PROCEDURE

1. Select Channel 16.
2. Press microphone button.
3. Say, "**MAYDAY-MAYDAY-MAYDAY. THIS IS (vessel name), (vessel name), (vessel name), (call letters), MAYDAY.**"
4. Tell where you are. (Be as precise as possible.)
5. State the nature of your distress.
6. Give number of adults and children on board and describe any injuries.
7. Estimate the seaworthiness of your vessel.
8. Briefly describe your vessel.
9. Say, "**I WILL BE LISTENING ON CHANNEL 16.**"
10. End with, "**THIS IS (VESSEL NAME & CALL SIGN), OVER.**"
11. Release the microphone button and listen for a reply. If no reply, repeat distress call. If there is still no answer, switch to another channel and repeat the distress call.

The logo features the word "Shakespeare" in a stylized, cursive script font. Above the text is a solid black horizontal bar, and below it is another solid black horizontal bar of the same length.

A *an Anthony Industries company*

SHAKESPEARE COMPANY
Electronics and Fiberglass Division
RFD 3 P.O. Box 733
Newberry, SC 29108
Phone 803-276-5504 Fax 803-276-8940

Copyright 1991 Shakespeare Company